Understanding the Concept of Construction Quality

Construction quality is a central concept in the approaches used to value commercial and industrial improvements. The quality of the material and workmanship used in constructing an improvement, together with its design elements, will influence its cost new.

Construction quality, and the resultant quality grade assigned, is a composite characteristic. It describes the cumulative effects of workmanship, the costliness of materials, and the individuality of design used in constructing an improvement. Although the construction quality of individual components of an improvement may vary, the overall construction quality tends to be consistent for the entire structure.

Workmanship quality can easily be observed in an inspection of the property. Good quality workmanship is evidenced by plumb vertical surfaces, level horizontal surfaces, properly located and installed mechanical systems, and an overall pride in workmanship.

Material quality is also easily observable during an inspection of the property. Primary indicators of material quality are type and spacing of framing members, type and grade of interior and exterior finishing materials, type and grade of plumbing and electrical fixtures, and type and grade of mechanical systems.

Design is also an indicator of quality of construction. Although most commercial and industrial structures are designed primarily for utility and not for looks, in some occupancies (e.g. office buildings) the importance of appearance and amenities is equal to the importance of pure utility. The fenestration and ornamentation plus the overall layout and design of the building should be considered in determining quality grade.

The costs given in this manual are for improvements that demonstrate a construction quality that is typical of the majority of improvements that will be valued.

Understanding Quality Grades

For each of the types of commercial and industrial improvements, a model has been defined to summarize the elements of construction quality that are typical of the majority of that type improvement. This typical model has been assigned a “C” quality grade. The characteristics of these typical models can be thought of as construction specifications for an improvement that was built with average quality materials and workmanship and has average design characteristics.

A “B” grade model and an “A” grade model have been defined to summarize the elements of improvements that use higher quality, hence more costly, building materials and workmanship than the typical model. A “D” grade model and an “E” grade model have been defined to summarize the elements of improvements that use lower quality, hence lower cost, building materials and workmanship than the typical model

When considering quality grade, keep in mind that the grades are relative rankings of the cost of the materials, workmanship, and design used in construction. Quality grade does not indicate an improvement is inferior or superior to an improvement assigned a different grade.

Appendix E Commercial and Industrial Grade

This appendix describes the construction elements for each quality grade for each type of commercial and industrial improvement. It also provides pictures and descriptions of actual improvements to illustrate the various quality grades.

Understanding Quality Grade Factors

The replacement cost of an improvement is calculated by taking the base price of the improvement, adjusting it for various construction elements that add or deduct value, and then multiplying this adjusted cost by a percentage based on the improvement's grade. This percentage, known as a Quality Grade Factor, adjusts the costs in this manual for variations in construction quality.

The quality grade factor for an improvement assigned a "C" grade is 100% since these were the quality grades assigned the models used to develop the costs published in this manual. In other words, a "C" quality grade has no affect on the costs taken from this manual. The quality grade factors for the other quality grades reflect an increase in costs above those costs given in the tables of this manual for quality grades higher than the typical and a decrease in costs for quality grades lower than the typical, as shown in Table E-1.

Table E-1. Quality Grade Factors

Quality Grade	Quality Grade Factor
A	160%
B	120%
C	100%
D	80%
E	40%

Assigning Quality Grades

When trying to determine grade, the assessor compares the materials and workmanship used in the subject structure to the construction specifications given in the grade classification tables and the pictures of graded structures. The assessor should emphasize the quality of materials and workmanship used in the construction of the structure when conducting this analysis and place less reliance on the pictures of graded structures. The assessor selects the grade that the subject structure most closely resembles. Most commercial and industrial structures fall between the "D" and "B" grade classifications, clustering heavily around the "C" grade classification.

However, some structures may have construction characteristics that fall into more than one grade classification. To assign a grade to these properties that deviate, the assessor must weigh the components that deviate from the grade selected for the subject property to determine whether an intermediate grade level is appropriate. The assessor should steer away from using intermediate grades if at all possible. Most structures will be designed and constructed using materials and workmanship that are typical for a specific grade without the need to assign intermediate grades. Thus, the assessor must use careful judgment when assigning the grade for a structure.

> **Example:** The assessor has determined that the primary grade for a commercial bank is "C". However, the bank has marble floors throughout the lobby and public areas that account for 50% of the total floor area. Since the "C" grade model allows for floor finishes of 75% carpet and 25% terrazzo, the assessor decides to assign this structure an intermediate grade, higher than the "C" base grade, but lower than "B".

Assigning Intermediate Quality Grades

Some improvements may have construction characteristics that deviate from the base quality grade specifications. To assign a quality grade to these structures, the assessor must weigh the components that deviate from the base quality grade selected for the subject to determine whether an intermediate quality grade, or an entirely higher or lower full quality grade, is appropriate. The assessor should steer away from using intermediate quality grades if at all possible. Most improvements will be designed and constructed using materials, workmanship, and design that are typical for the base quality grade assigned to the subject without the need to assign intermediate quality grades. Thus, the assessor must use careful judgment when assigning any quality grade that varies from the base quality grade.

The following guidelines apply when assigning an intermediate quality grades:

- "+ 2" indicates a quality grade that falls halfway between two full quality grades (AA, A, B, C, D, E). The quality grade factor for this intermediate quality grade is halfway between the percentages for the two full quality grades immediately above and below it.

For example, a quality grade of "C + 2" indicates that the overall construction quality is halfway between "C" and "B". It would have a quality grade factor of 110% meaning the assessor has determined that the construction quality of the

improvement has caused its cost new to be 10% higher than those given in the cost schedules in this manual.

- "+ 1" indicates a quality grade slightly higher than the full quality grade immediately below it. The quality grade factor for this intermediate quality grade is one quarter of the interval between the percentages for the two full quality grades immediately above and below it.

  For example, a grade of "C + 1" indicates that the overall construction quality is one quarter of the way between "C" and "B". It would have a quality grade factor of 105% (one quarter of the way between 100% and 120%). This means the assessor has determined that the construction quality of the improvement has caused its cost new to be 5% higher than those costs given in the schedules in this manual.

- "– 1" indicates a quality grade slightly lower than the full quality grade immediately above it. The quality grade factor for this intermediate quality grade is one quarter of the interval between the percentages for the two full quality grades immediately above and below it.

  For example, a grade of "C - 1" indicates that the overall construction quality is one quarter of the way between "C" and "D". It would have a quality grade factor of 95% (one quarter of the way between 100% and 80%). This means the assessor has determined that the construction quality of the improvement has caused its cost new to be 5% lower than those costs given in the schedules in this manual.

  "E –1" is the only intermediate quality grade below "E". It represents a reduction of ten percentage points from the "E" quality grade factor.

  Note: Levels below E and above A do not apply to special use commercial properties

Grade Factor Percentages

Table E-2 shows the quality grade factors as percentages for the full and intermediate quality grades.

Table E-2. Quality Grade Factors for Commercial and Industrial Improvements

GRADE	FACTOR
AAA	360%
AAA-1	330%
AA+2	300%
AA+1	270%
AA	240%
AA-1	220%
A+2	200%
A+1	180%
A	160%

GRADE	FACTOR
A-1	150%
B+2	140%
B+1	130%
B	120%
B-1	115%
C+2	110%
C+1	105%
C	100%
C-1	95%

GRADE	FACTOR
D+2	90%
D+1	85%
D	80%
D-1	70%
E+2	60%
E+1	50%
E	40%
E-1	30%

Quality Grade Specification Tables

Table E-3 provides a list of the typical construction materials and design elements found in each full construction quality grade. This table is designed to assist the local assessing official in determining the appropriate quality grade to assign to commercial and industrial structures in his/her jurisdiction.

These descriptions **are not** detailed construction specifications of any particular structure. They are intentionally general to emphasize the most prominent elements of all structures within a given quality grade. Because a structure does not have a particular element listed in the table, does not mean it cannot fit into the respective quality grade. Likewise, if a structure has something more than is listed in a particular quality grade, it does not necessarily mean it fits into a higher quality grade.

As stated earlier in this discussion of construction quality; although the construction quality of individual components of an improvement may vary, the overall construction quality tends to be consistent for the entire structure.